AMENDMENTS TO THE CLAIMS:

Claim 1 (currently amended): An apparatus, comprising:

a wafer stage having a wafer chuck configured to hold a wafer, the wafer stage having a first mirror and a second mirror located at different heights and different horizontal positions on the wafer stage;

an interferometer positioned on one side of the wafer stage, the interferometer configured to generate and reflect at least two measuring beams off the first and second mirrors on the wafer stage respectively; and

a computation device configured to measure the height of a wafer on the wafer chuck based on height information received from the reflected two measuring beams.

Claim 2 (currently amended): The apparatus of claim 1, wherein the interferometer is further configured to generate first and second reference beams and to cause the first and second reference beams to be reflected off the wafer stage such that two height measurement data points are optically generated by combining the first reference reflected beam from the first reflected measurement beam and ~~combining~~ the second reference reflected beam from the second reflected beam respectively.

Claim 3 (original): The apparatus of claim 2, wherein the computation device computes the height of the wafer on the wafer chuck from the two optically generated height measurement data points.

Claim 4 (currently amended): The apparatus of claim 3, wherein the first reference beam and the second reference beam are reflected off the wafer stage at positions ~~such that the computation device can compute the height of the wafer stage from the two optically generated height measurement data points without the roll and pitch of the wafer stage substantially influencing the computation~~ that are on mutually opposite sides of the center of said wafer stage, and wherein the two measuring beams are aimed and reflected at target points each on the first mirror and the second mirror, said target points being horizontally displaced from each other and symmetrical with respect to said center.

Claim 5 (currently amended): The apparatus of claim 1, wherein the first mirror is located on a first side of the wafer stage adjacent the interferometer and the second mirror is located on a second side opposite the first side on the wafer stage, both said first mirror and said second mirror facing said interferometer.

Claim 6 (original): The apparatus of claim 1, wherein the first mirror and the second mirror are positioned at 45 degree angles with respect to the two measuring beams respectively.

Claim 7 (original): The apparatus of claim 2, wherein the two height measurement data points are optically generated by subtracting the first and second reference reflected beams from the first and second measurement beams respectively.

Claim 8 (currently amended): A method of measuring a vertical displacement of a wafer stage having a wafer chuck configured to hold a wafer, said method comprising the steps of:

providing said wafer stage with a first mirror and a second mirror located at specified different heights and different horizontal positions on the wafer stage with respect to the wafer chuck;

positioning an interferometer on one side of the wafer stage, the interferometer configured to generate and reflect at least two measuring beams off the first and second mirrors on the wafer stage respectively; and

measuring the height of a wafer on the wafer chuck by means of a computation device based on height information received from the reflected two measuring beams.

Claim 9 (currently amended): A lithography system for projecting a pattern on a wafer by a projection beam by preliminarily determining a surface profile of the wafer on a

stage and subsequently introducing the stage with the wafer into the projection beam, said lithographic system comprising:

an illumination source;

an optical system;

a reticle stage arranged to retain a reticle;

a wafer stage having a wafer chuck configured to hold a wafer, the wafer stage having a first mirror and a second mirror located at specified different heights and different horizontal positions on the wafer stage with respect to the wafer chuck;

an interferometer positioned on one side of the wafer stage, the interferometer configured to generate and reflect at least two measuring beams off the first and second mirrors on the wafer stage respectively; and

a computation device configured to measure the height of a wafer on the wafer chuck based on height information received from the reflected two measuring beams.

Claim 10 (original): The lithography system of claim 9, wherein the interferometer is further configured to generate first and second reference beams and to cause the first and second reference beams to be reflected off the wafer stage such that two height measurement data points are optically generated by combining the first reference reflected beam from the first reflected measurement beam and combining the second reference reflected beam from the second reflected beam respectively.

Claim 11 (original): The lithography system of claim 10, wherein the computation device computes the height of the wafer on the wafer chuck from the two optically generated height measurement data points.

Claim 12 (currently amended): The lithography system of claim 11, wherein the first reference beam and the second reference beam are reflected off the wafer stage at positions ~~such that the computation device can compute the height of the wafer stage from the two optically generated height measurement data points without the roll and pitch of the wafer stage substantially influencing the computation~~ that are on mutually opposite sides of

the center of said wafer stage, and wherein the two measuring beams are aimed and reflected at target points each on the first mirror and the second mirror, said target points being horizontally displaced from each other and symmetrical with respect to said center.

Claim 13 (currently amended): The lithography system of claim apparatus of claim 9, wherein the first mirror is located on a first side of the wafer stage adjacent the interferometer and the second mirror is located on a second side opposite the first side on the wafer stage, both said first mirror and said second mirror facing said interferometer.

Claim 14 (original): The lithography system of claim 9, wherein the first mirror and the second mirror are positioned at 45 degree angles with respect to the two measuring beams respectively.

Claim 15 (original): The lithography system of claim 10, wherein the two height measurement data points are optically generated by subtracting the first and second reference reflected beams from the first and second measurement beams respectively.

Claim 16 (original): The lithography system comprising two sets of wafer stage and interferometer as each recited in claim 9, wherein both of the interferometers are positioned on a same side of the wafer stages.

Claim 17 (currently amended): An apparatus comprising:

a stage that is movable in at least one direction, the stage having a first mirror and a second mirror located at different heights and different horizontal positions on the stage;

an interferometer positioned away from the stage and facing one side of the stage, the interferometer configured to generate and reflect at least two measuring beams off the first and second mirrors on the stage respectively; and

a computation device connected to the interferometer, the computation device being configured to determine information related to the position of the stage along said one direction based on information received from the reflected two measuring beams.

Claim 18 (original): An object manufactured with the lithography system of claim 9.

Claim 19 (original): A wafer on which an image has been formed by the lithography system of claim 9.

Claim 20 (original): A method for making an object using a lithography process, wherein the lithography process utilizes a lithography system as recited in claim 9.

Claim 21 (original): A method for patterning a wafer using a lithography process, wherein the lithography process utilizes a lithography system as recited in claim 9.